new idea

SOLUTION

Magic Trick Decodage

```python
distance = output[4] - output[0]
if distance > 6:
    distance = 13 - distance
    tmp = output[0]
    output[0] = output[4]
    output[4] = tmp
if distance == 1:
    output[1] = a
    output[2] = b
    output[3] = c
elif distance == 2:
    output[1] = a
    output[2] = c
    output[3] = b
elif distance == 3:
    output[1] = b
    output[2] = a
    output[3] = c
elif distance == 4:
    output[1] = b
    output[2] = c
    output[3] = a
elif distance == 5:
    output[1] = c
    output[2] = a
    output[3] = b
elif distance == 6:
    output[1] = c
    output[2] = b
    output[3] = a
print("Quatres premiers:", output[0], output[1], output[2], output[3])
```

new idea

LISTES: COMPREHENSIONS

En Python, la notion de liste de compréhension (ou compréhension de listes) représente une manière originale et convenient de générer des listes.

La syntaxe de base consiste au moins en une boucle for au sein de crochets précédés d'une variable

list compréhension

```python
A = [i for i in range(0, 10)]

print(type(A))
print(A)
```

↓

```
<class 'list'>
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
A = [2*i for i in range(0,31) if i % 2 == 0]

print(A)
```

↓

```
[0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60]
```

```
[2*i for i in range(0,31) if i % 2 == 0]
```

elements
de liste | variable | domain | condition

```
A = [ [2*i] for i in range(0, 11) if i % 2 == 0]

print(A)
```

↓ **les deux sont exactement identiques !**

```
[[0], [4], [8], [12], [16], [20]]
```

↑

```
A = []
for i in range(0, 11):
    if i%2 == 0:
        A.append([2*i])

print(A)
```

```
s = "My name is Nabil."
A = s.split()
B = [ [x, len(x)] for x in A ]

print(A)
print(B)
```

↓

```
['My', 'name', 'is', 'Nabil.']
[['My', 2], ['name', 4], ['is', 2], ['Nabil.', 6]]
```

```
s = "My name is Nabil."
A = s.split()
B = [ [x, len(x)] for x in A if len(x) >= 3]

print(A)
print(B)
```

↓

```
['My', 'name', 'is', 'Nabil.']
[['name', 4], ['Nabil.', 6]]
```

```
s = "My name is Nabiil."
A = s.split()
B = [ [x, len(x)] for x in A for y in x if y == 'i' ]

print(B)
```

les deux sont exactement identiques !

`[['is', 2], ['Nabiil.', 7], ['Nabiil.', 7]]`

```
s = "My name is Nabiil."
A = s.split()

B = []
for x in A:
    for y in x:
        if y == 'i':
            B.append( [x, len(x)] )

print(B)
```